

Work Order ID 142647

Friday, March 11, 2016 9:58:10 AM

646.9701
B142647
REV-D***142647***

Page 1

Item ID: 646.9701

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Cutter Sub Assembly

Start Date: 3/28/2016 Start Qty: 3.00

3

Cust Item ID:

Required Date: 4/8/2016 Req'd Qty: 3.00

3

Customer:

Reference:

Approvals: Process Plan: MCS Date: MAR 11 2016 Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

646.9700	REV D
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110	Pick Kit	0.00
-----	----------	------

110

Packaging

Memo

0.00

Packaging

120

120

Small Fab

Memo

0.01

Small Fab

Assemble as per dwg and apply loctite 598 on all faying surfaces per note.

A/R RTV LOCTITE 598: M135047
exp. date: 01/18DAS
30
9-893JUL 05 2016

130

130

QC

QC5- Inspect part completeness to step on W/O 0.00

Memo

0.00

Quality Control

(3)DAS
38
9-89JUL 06 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 142647

Friday, March 11, 2016 9:58:10 AM

142647

Page 2

Item ID: 646.9701

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Cutter Sub Assembly

Start Date: 3/28/2016 Start Qty: 3.00 *3*

Cust Item ID:

Required Date: 4/8/2016 Req'd Qty: 3.00 *3*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Identify as per dwg & Stock Location: <u>CK012</u>	0.00							
140									
Packaging	Memo	0.00							
Packaging	***IDENTIFY AS PER IAW MPP-120***								
150	QC21- Final Inspection - Work Order Release	0.00							
150									
QC	Memo	0.00							
Quality Control									

JUL 07 2016

6-6
9
SWD

3

PC JUL 07 2016

16/7/12 DJ

DAS
21

9-89 JUL 08 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

Friday, March 11, 2016 9:58:10 AM

Page 1

Work Order ID: 142647

142647

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 3/28/2016

Required Date: 4/8/2016

Start Qty: 3.00

Required Qty: 3.00

Comments:

IPP REV:A 12.08.13 NEW ISSUE DD VERF:JFS
:B AS PER REV D 16-03-07 JLM VERIFIED BY:JFS

IPP REV

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

646.9710 Manufactured No

646 9710

Body

Location

Loc Qty

Loc Code

CCK013

6

128805

3

130854

3

110

Each

38.0000

2

6

**

DAS
30
9-89

JUN 27 2016

646.9711 Manufactured No

646 9711

Blade

Location

Loc Qty

Loc Code

CCK108A

38

136098

20

138180

18

110

Each

1,040.000

6

18

**

DAS
8
9-89

APR 13 2016

MS27039-08-19 Purchased No

MS27039-08-19

Screw

Location

Loc Qty

Loc Code

CCK06

200

m134142

200

GA

677

m132930

84

m133077

22

m134063

571

over006

100

m134294

100

ST277

63

m133769

63

DAS
6
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

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Page 2

Work Order ID: 142647

142647

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 3/28/2016

Required Date: 4/8/2016

Start Qty: 3.00

Required Qty: 3.00

NAS1149FN832P

Purchased

No

110

Each

3,671.000

12

36

NAS1149FN832P

Washer

Location

Loc Qty

Loc Code

GA

1361

M133316

16

M133769

1345

ST260a

1200

M134257

1200

ST262

1110

M133709

1110

36

MS21042L08

Purchased

No

110

Each

1,645.000

6

18

MS21042L08

Nut

Location

Loc Qty

Loc Code

CA

101

m129682

101

GA

161

m133134

3

m134063

158

OVER007

500

m134063

500

ST303

483

m133922

483

ST308

400

m134376

400

18

DAS
8.00

DAS
8.00

APR 12 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

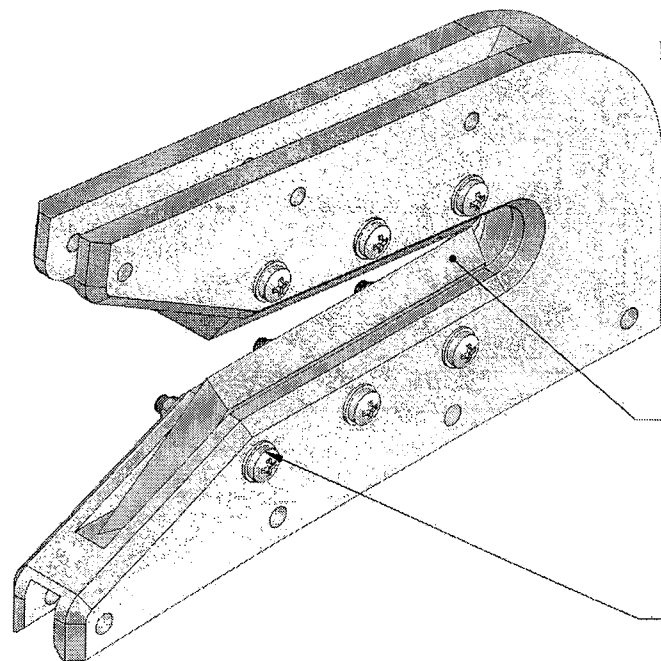
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RETURN TO
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT

WITHOUT NOTICE
WORK ORDER

NO. 142647 MLC

16-03-11



① OR ⑦ OR ⑧

② 2PL

③ 6PL

④ 12PL

⑥ 6PL

646.9701 SHOWN
646.9702 & 646.9703 TYP

NOTES:

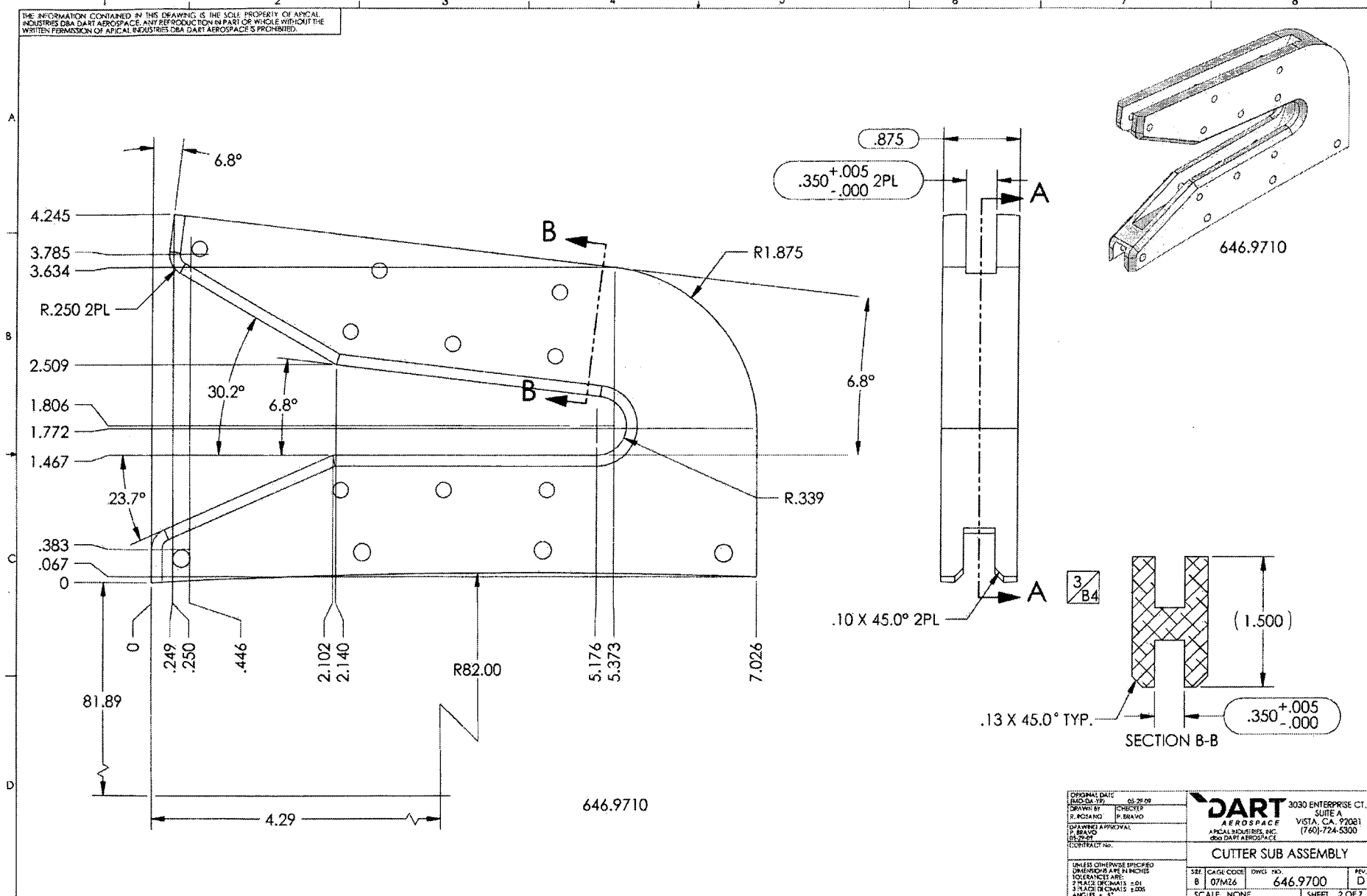
- ① MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- ② FINISH IAW MPP-172 SECTION 3.3 & 4.3.
- ③ MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- ④ FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- ⑦ APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- ⑧ CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- ⑨ ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION: P02		N/C
10	INITIAL RELEASE	08/20/00	P. BRAVO
A	INCORPORATED ECH 6324, 03838, 03912	09/04/10	P. BRAVO
B	INCORPORATED ECH 6324	07/03/13	P. BRAVO
C	INCORPORATED ECH 6324	08/09/13	P. BRAVO
D	INCORPORATED ECH 6324	02/26/14	P. BRAVO

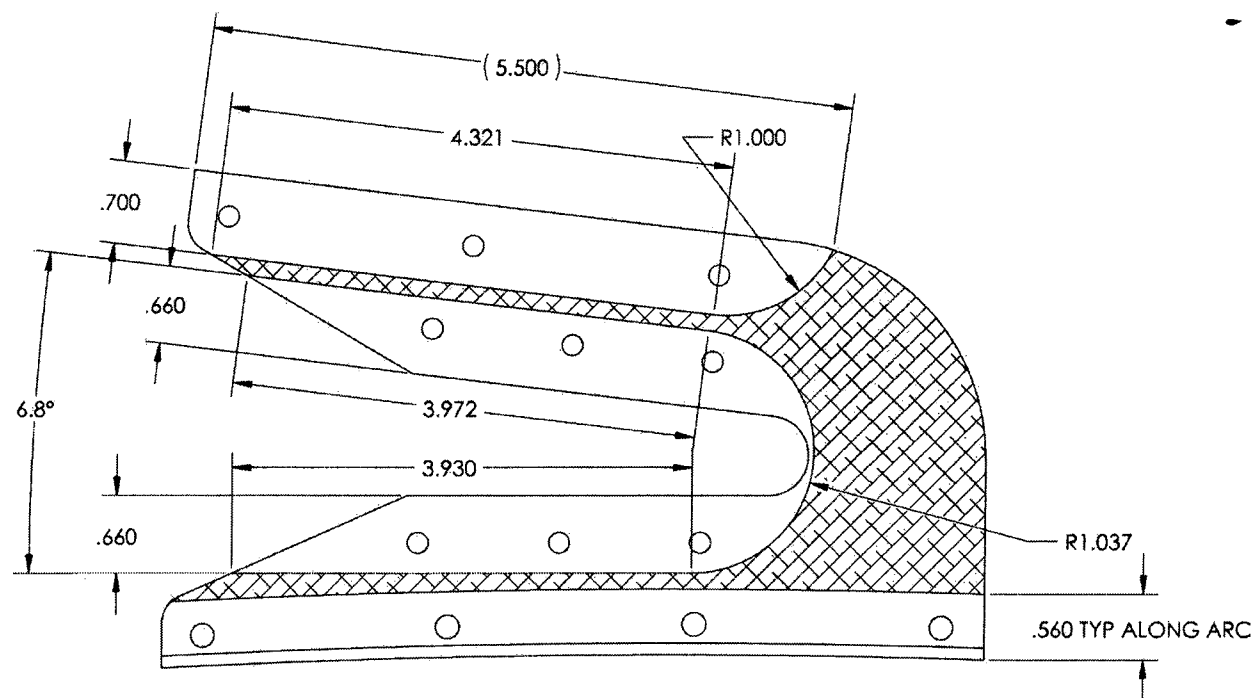
1			8	646.9713	BODY	△	△/△
	1		7	646.9712	BODY	△	△/△
6	6	6	6	601.1541	LOCKNUT	MS21042L08	
A/R	A/R	A/R	5	601.2045	RTV, LOCTITE 598		
12	12	12	4	601.2764	WASHER	NAS1147H632P	
6	6	6	3	601.2765	SCREW	MS22039-0619	
2	2	2	2	646.9711	BLADE	△	△
			1	646.9610	BODY	△	△
X				646.9703	CUTTER SUB ASSY		
	X			646.9702	CUTTER SUB ASSY		
		X		646.9701	CUTTER SUB ASSY		
9703	9702	9701	FIND #	PART #	DESCRIPTION	MATL	SPEC.

PARTS LIST			
QTY			
NEXT ASSY (S)			
646.9600			
ORIGINAL DATE: 05-29-09			
DRAWN BY: P. ROSANO			
CHECKED BY: P. BRAVO			
DESIGNED BY: P. BRAVO			
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ± .01 2 PLACE DECIMALS ± .005 ANGLES ± .5°			
DART 3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760)-724-5300			
CUTTER SUB ASSEMBLY			
SHEET 8	CHG CODE 07M26	DWG. NO. 646.9700	REV D
SCALE NONE		SHEET 1 OF 7	

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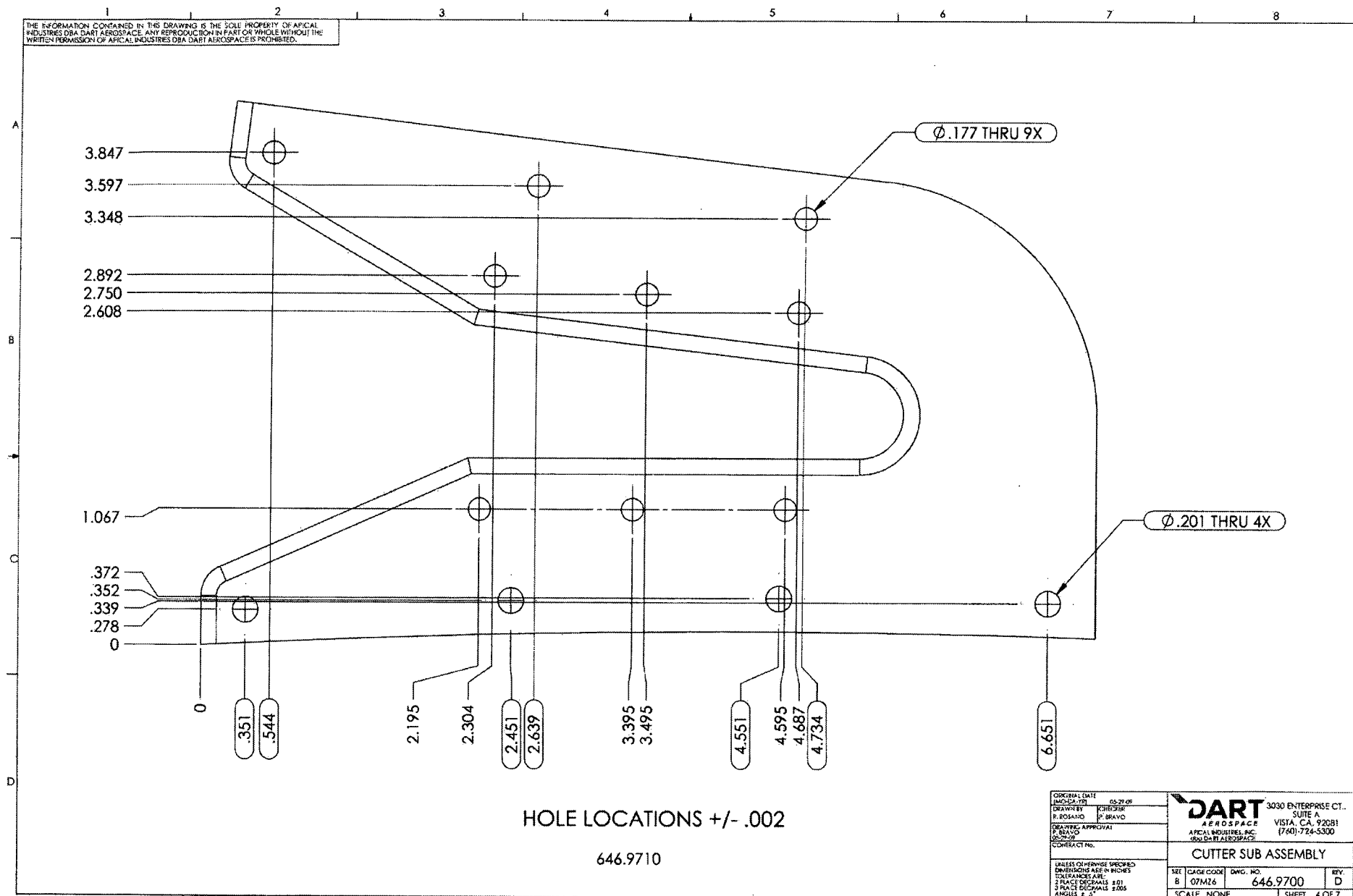


SECTION A-A $\frac{2}{C6}$

646.9710

ORIGINAL DATE (DD-MY-YY) 05-28-09		DART AEROSPACE 3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760)-724-5300	
DRAWN BY P. ROSANO		CHECKED BY J. BRAYNO	
DRAWING APPROVAL J. BRAYNO		AERICAL INDUSTRIES DDA DART AEROSPACE	
CONTRACT NO.		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SHEET B	DATE NO. 07M16 646.9700
SCALE NONE		REV. D	
SHEET 3 OF 7		SHEET 3 OF 7	

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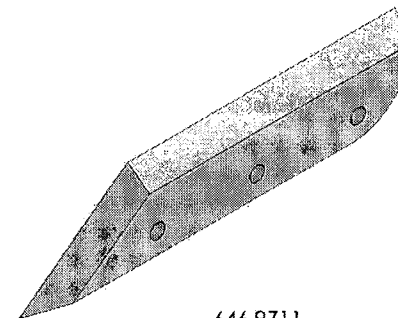
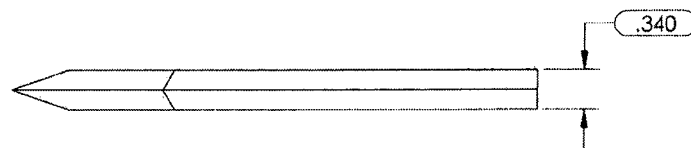
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A

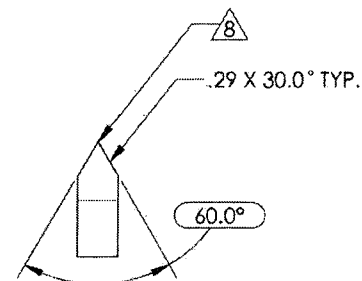
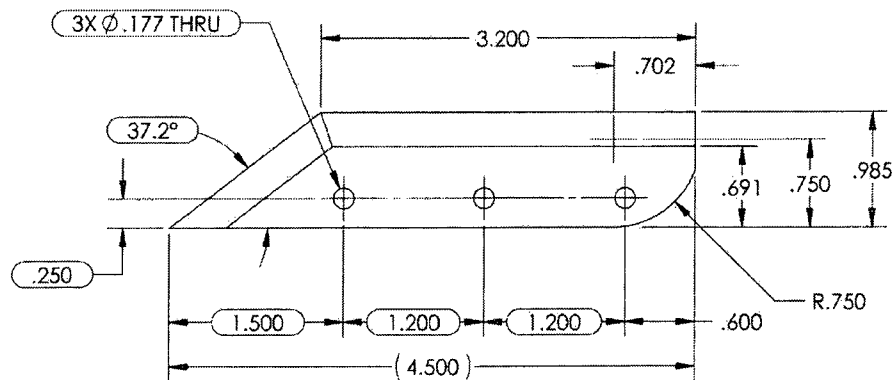
B

C

D



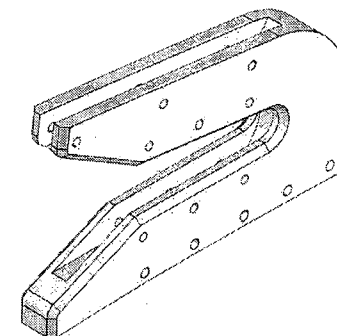
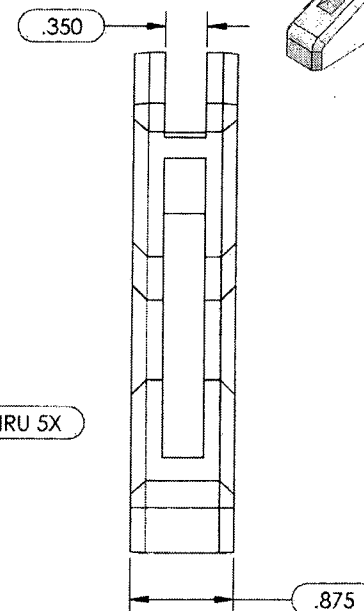
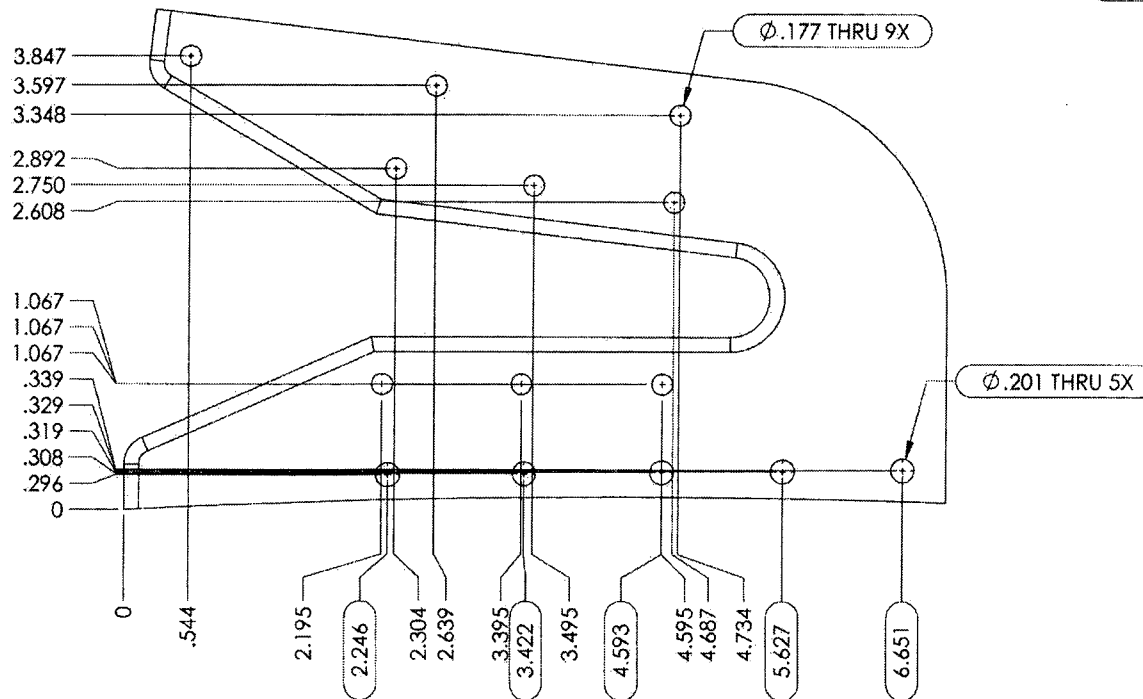
646.9711



646.9711

ORIGINAL DATE 05-27-07		3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760) 724-5300	
DRAWN BY S. KOBAYASHI	CHECKED BY P. BRAVO	APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
DRAWING APPROVAL P. BRAVO 05-27-07		CUTTER SUB ASSEMBLY	
CONTRACT NO.		REV. 1 B	REV. 2 D
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES 3 PLACE DECIMALS 1.01 ANGLES 1.0		SCALE NONE	SHEET 5 OF 7

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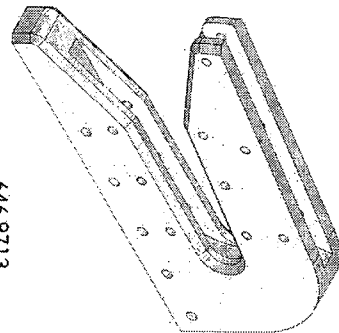
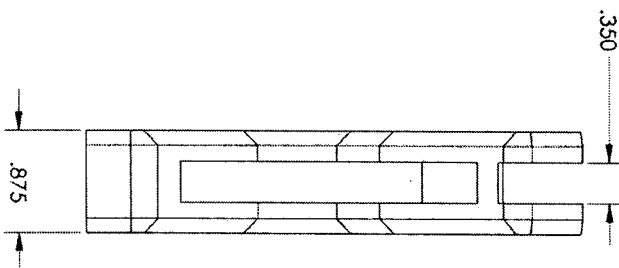
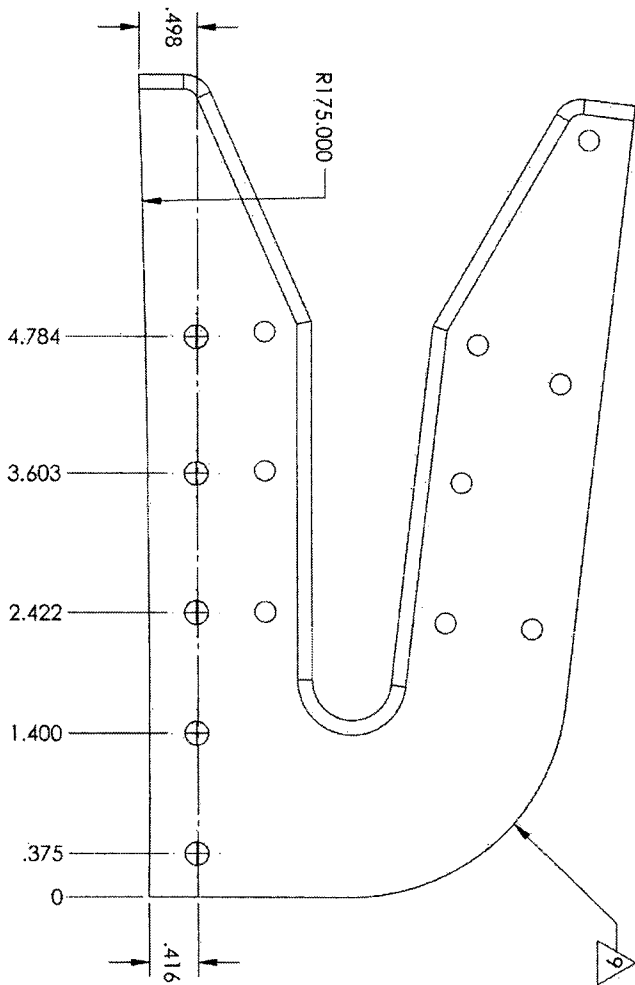


646.9712 9

646.9712

ORIGINAL DATE: 05-20-99		DART 3030 ENTERPRISE CT., SUITE A	
DRAWN BY: J. BAYO		VISTA, CA. 92081	
E. COHANO		(760) 724-5300	
DRAWING APPROVAL: J. BAYO		APICAL INDUSTRIES, INC.	
UNLESS OTHERWISE SPECIFIED		CUTTER SUB ASSEMBLY	
DIMENSIONS ARE IN INCHES		SCALE: NONE	
TOLERANCES ARE:		SHEET 6 OF 7	
2 PLACE DECIMALS ±.01			
3 PLACE DECIMALS ±.005			
ANGLES: 1:5			

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ORIGINAL UNIT		06/28/00
PROJECT NO.		06/28/00
DESIGNED BY		W. BROWN
CHECKED BY		W. BROWN
DATE		06/28/00
CUTTER SUB ASSEMBLY		
PART NO.		646.9713
REV		0
SCALE		NONE
SHEET		7 OF 7